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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/081,917	02/20/2002	Graham Andrew Cairns	YAMAP0802US	2193

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Neil A. DuChes
Renner, Otto, Boisselle & Sklar, LLP
19th Floor
1621 Euclid Avenue
Cleveland, OH 44115

EXAMINER

DI GRAZIO, JEANNE A

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 05/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/081,917

Applicant(s)

CAIRNS ET AL.

Examiner

Jeanne A. Di Grazio

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4 and 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Priority

Priority to GB 0104786.9 (Feb. 27, 2001) is claimed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 7, 10, 11-17, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang (US '858 B1) in view of Ohtani et al. (US '543 B1).

Per claim 1: Zhang has a switch element connecting a data line to a capacitor and image element (Col. 4, Lines 10-15 and Lines 34-36). Zhang does not appear to have a switch connecting first and second capacitors; however, Ohtani has first and second capacitors connected to a transistor (See claim 2 of Ohtani). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Zhang in view of Ohtani for sufficient auxiliary capacitance and high aperture ratio (Col. 2, Lines 6-10).

Per claim 7: Zhang has transistors (TFTs) as switching devices. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use TFTs because TFTs are commonly used for switching.

Per claim 10: Zhang has picture element arranged in rows and columns and connected to respective data and scan lines (Col. 1, Lines 15-25). Such an arrangement is common in active matrix displays for driving the displays.

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Per claims 11-16: Zhang illustrates in Figure 2D a plurality of capacitor and TFTs so arranged and their interconnections. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the elements of claims 11-16 as part of an active matrix display to further reduce OFF current as noted in Zhang (Col. 3, Lines 53-57).

Per claim 17: Capacitors are typically used as charge storage elements (See, generally, Zhang).

Per claim 27: Zhang does not appear to recite a display; however, see Ohtani (Figures 14A-F). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Zhang in view of Ohtani to incorporate the device into a display because one typically will want to incorporate a device into a portable display.

Claims 2-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang (US '858 B1) and Ohtani et al. (US '543 B1) as applied to claim 1 above and further in view of Chen et al. (US '329).

Per claims 2-6: Zhang does not appear to specify an image element; however, Chen has: a light modulating element (Col. 2, Lines 58), a transmissive or reflective image element (Col. 3, Lines 32-35), a liquid crystal element (Col. 2, Line 58) and a light emitting element (Col. 4, Lines 60-62). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Zhang in view of Chen to incorporate the image elements into a electro-optical system (Col. 3, Lines 15-24).

Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang (US '858 B1) and Ohtani et al. (US '543 B1) as applied to claims 1-7 above and further in view of Maurice (US '566 B1).

Per claim 8: Zhang does not appear to have a second capacitor greater than that of a first capacitor; however, Maurice has a second capacitor with a value greater than that of the first capacitor (See claim 2 of Maurice). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Zhang in view of Maurice if so desired in a compensation process.

Per claim 9: See Figure 3 of Maurice. It would have been obvious to one of ordinary skill in the art at the time the invention was made to connect the capacitors in series in a compensation process as so noted above.

Claims 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang (US '858 B1) and Ohtani et al. (US '543 B1) as applied to claims 1-17 above and further in view of Koifman et al. (US '063).

Per claims 18-20: Zhang does not appear to specify capacitors having a common plate, a common plate part of a GL and a first capacitor with a plate of SL; however, Koifman has first and second capacitors sharing a common plate (Col. 4, Lines 8-10), a plate part of a GL (Col. 5, Lines 53-58), and a capacitor with a plate part of a SL (Id.). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Zhang in view of Koifman in a feedback unit and for noise reduction as noted in Koifman.

Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang (US '858 B1), Ohtani et al. (US '543 B1) and Koifman et al. (US '063) as applied to claims 18-20 above and further in view of Williams et al. (US '743).

Per claims 21-23: Zhang does not appear to have the elements of claims 21-23; however, Williams has a plate of a heavily doped silicon layer (Col. 27, Lines 40-49), a capacitor with a

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gate oxide (Col. 27, Lines 35-39), and a MOS capacitor. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Zhang in view of Williams for: (1) to make a MOS capacitor easy to use and (2) increased capacitance of a MOS capacitor, and (3) power integrated circuits as all taught in Williams (Id.).

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang (US '858 B1), Ohtani et al. (US '543 B1), Koifman et al. (US '063) Williams et al. (US '743) as applied to claim 23 above and further in view of Razdan et al. (US '760).

Per claim 24: Razdan does not appear to have a MOS with source and drain connected to a switch and image element; however, see Razdan (Col. 5, Lines 50-52). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Zhang in view of Razdan for a logic input to ANMOS depending on the state of the gate terminal (Id.).

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang (US '858 B1), Ohtani et al. (US '543 B1), Koifman et al. (US '063) Williams et al. (US '743) as applied to claim 23 above and further in view of Kusunoki (US '676 B2).

Per claim 25: Zhang does not appear to have gate/source, gate/drain overlap of a MOS; however, see Kusunoki (Col. 4, Lines 65-67 and Col. 5, Lines 4-5). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Zhang in view of Kusunoki to affect gate voltage in a MOS capacitor as taught in Kusunoki.

Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang (US '858 B1), Ohtani et al. (US '543 B1), Koifman et al. (US '063) Williams et al. (US '743) and Kusunoki (US '676 B2) as applied to claim 25 above and further in view of Hirase et al. (US '982).

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Per claim 26: Zhang does not appear to have a MOS with a lightly doped drain below the gate electrode; however, see Hirase (Col. 9, Lines 63-69 and Col. 10, Lines 1-11). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Zhang in view of Hirase for excellent current drivability (Hirase at Col. 10, Lines 7-11).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeanne A. Di Grazio whose telephone number is (703)305-7009. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached on (703) 305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703)746-8741 for regular communications and (703)746-8741 for After Final communications.

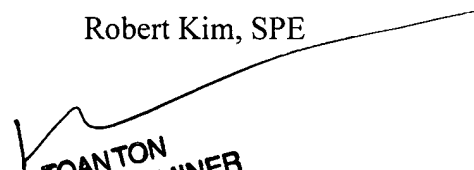
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

Jeanne Andrea Di Grazio

Robert Kim, SPE

JDG

May 3, 2003


TOANTON
PRIMARY EXAMINER